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EXAMINER

PANNALA, SATHYANARAYA R

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/30/2008 has been entered.

Response to Amendment

2. Applicant's Amendment received on 12/30/2008, in response to the Office Action mailed on 9/3/2008. This amendment has been entered with amended claims 1, 6, 14, 18, 20 and cancelled claim 2. In this Office Action, claims 1, 3-20 are pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilpatrick et al. (US Patent 6,742,124) hereinafter Kilpatrick, in view of Chan et al. (US Patent 6,697,844) hereinafter Chan and in view of Duffey (USPA Pub. US 20040243501 A1).

5. As per independent claim 1, Kilpatrick teaches an intrusion detection operating efficiently in real-time. Computational efficiency is generated through the representation of known sequences of system calls in a distance matrix. The distance matrix indirectly specifies known sequences by specifying allowable separation distances between parts of systems (col. 3, lines 11-16). Kilpatrick teaches the claimed, calculating a Levenshtein matrix of a first string and a second string (Fig. 6, col. 10, lines 7-10). Kilpatrick teaches the claimed, determining a Levenshtein distance from said Levenshtein matrix (Fig. 6, col. 10, lines 27-28). Kilpatrick teaches the claimed, storing at least one of the Levenshtein matrix, the Levenshtein distance and the substring in a computer-readable medium (Fig. 2, col. 6, lines 38-41).

Kilpatrick does not explicitly teach largest common substring between strings. However, Chan teaches the claimed, determining a longest diagonal of equal hamming distance within the Levenshtein matrix (as per the spec. Page 7, lines 17-18, longest diagonal is same as the largest common substring) (Fig. 4, col. 9, lines 2-6). Chan also teaches the claimed, Determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and second strings (Fig. 4, col. 8, lines 38-42). Thus, it would have been obvious to

one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Chan's teachings would have allowed Kilpatrick's method to reduce the amount of latency by caching and prefetching components of electronic mail messages using information relating to similar objects that were previously supplied to the client by the mail server (col. 2, lines 22-25 and lines 33-35).

Kilpatrick and Chan do not explicitly teach automating data entry, processing or reporting. However, Duffey teaches the claimed, automating at least one of data entry, processing or reporting for a database based upon said Levenshtein distance and said largest common substring (Fig. 8A, col. 13, lines 45-52). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Duffey's teachings would have allowed Kilpatrick's method to bridge the gap between any e-mail communications and the vendor's order processing system (page 1, paragraph [0007]).

6. As per dependent claim 3 Kilpatrick teaches the claimed, calculating a Levenshtein score (Fig. 5, col. 9, lines 44-45).

7. As per dependent claim 4, further comprising determining the length of the largest common substring (Fig. 5, Table 2, col. 9, lines 31-35).

8. As per dependent claim 5, further comprising calculating a largest common substring score (Fig. 5, Table 2, col. 9, lines 31-35).

9. Claims 6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilpatrick et al. (US Patent 6,742,124) hereinafter Kilpatrick, in view of Haigh et al. (USPA Pub. 2003/0004716 A1) hereinafter Haigh, and in view of Chan et al (US Patent 6,697,844) hereinafter Chan and further in view of Duffey (USPA Pub. US 20040243501 A1).

10. As per independent claim 6, Kilpatrick teaches an intrusion detection operating efficiently in real-time. Computational efficiency is generated through the representation of known sequences of system calls in a distance matrix. The distance matrix indirectly specifies known sequences by specifying allowable separation distances between parts of systems (col. 3, lines 11-16). Kilpatrick teaches the claimed, calculating a Levenshtein matrix of a first string and a second string (Fig. 6, col. 10, lines 7-10). Kilpatrick teaches the claimed, determining a Levenshtein distance from said Levenshtein matrix (Fig. 6, col. 10, lines 27-28). Kilpatrick teaches the claimed, determining if first string is a match to second string based upon said similarity (col. 11, lines 8-10).

Kilpatrick does not explicitly teach largest common substring between strings. However, Haigh teaches the claimed, determining a largest common substring (Fig. 6, page 5, paragraph [0053-0054]). Thus, it would have been obvious to one of ordinary

skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]). Kilpatrick teaches the claimed, calculating a Levenshtein score as a function of said Levenshtein distance (Fig. 6, col. 9, lines 44-45). Kilpatrick teaches the claimed, calculating a largest common substring score as a function of said largest common substring (Fig. 6, Table 2, col. 9, lines 31-35).

Kilpatrick and Haigh do not explicitly teach determining similarity between two strings. However, Chan teaches the claimed, determining a similarity between a set of characters in said first string and a set of characters in said second string as a function of said Levenshtein distance and said largest common substring (Fig. 4-5, 7A-B, col. 9, lines 2-6 and col. 10, lines 55-62). However, Chan teaches the claimed, determining a longest diagonal of equal hamming distance within the Levenshtein matrix (as per the spec. Page 7, lines 17-18, longest diagonal is same as the largest common substring) (Fig. 4, col. 9, lines 2-6). Chan also teaches the claimed, Determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and second strings (Fig. 4, col. 8, lines 38-42). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Chan's teachings would have allowed Kilpatrick's method to reduce

the amount of latency by caching and prefetching components of electronic mail messages using information relating to similar objects that were previously supplied to the client by the mail server (col. 2, lines 22-25 and lines 33-35).

Kilpatrick, Haigh and Chan do not explicitly teach automating data entry, processing or reporting. However, Duffey teaches the claimed, automating at least one of data entry, processing or reporting for a database based upon said similarity, including at least one of said first or second strings (Fig. 8A, col. 13, lines 45-52). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Duffey's teachings would have allowed Kilpatrick's method to bridge the gap between any e-mail communications and the vendor's order processing system (page 1, paragraph [0007]).

11. As per dependent claim 7, Kilpatrick teaches the claimed, calculating an acronym score of said first string and said second string (Fig. 6, col. 9, lines 44-45).

12. As per dependent claim 8, Kilpatrick and Haigh combined teaches claim 6. Haigh teaches the claimed, calculating a weighted acronym score comprising a product of said acronym score and an acronym weight factor (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and

categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

13. As per dependent claim 9, Kilpatrick and Haigh combined teaches claim 6. Haigh teaches the claimed, calculating a weighted Levenshtein score comprising a product of said Levenshtein score and a Levenshtein weight factor calculating a weighted largest common substring score comprising a product of said largest common substring score and a largest common substring weight factor and calculating a Levenshtein largest common substring score comprising a sum of said weighted Levenshtein score and said weighted largest common substring score (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

14. As per dependent claim 10, Kilpatrick and Haigh combined teaches claim 6. Haigh teaches the claimed, a sum of said Levenshtein weight factor and said largest common substring weight factor is equal to one (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and

categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

15. As per dependent claim 11, Kilpatrick and Haigh combined teaches claim 6. Haigh teaches the claimed, calculating a first weighted numerical score, comprising a product of said Levenstein/largest common substring score and a string weight factor (Fig..7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

16. As per dependent claim 12, Kilpatrick and Haigh combined teaches claim 6. Haigh teaches the claimed, calculating an acronym score, calculating a weighted acronym score comprising a product of said acronym score and an acronym weight factor and calculating a second weighted numerical score comprising a sum of said first weighted numerical score and said weighted acronym score of said first string and said second string (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to

overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

17. As per dependent claim 13, Kilpatrick and Haigh combined teaches claim 6. Haigh teaches the claimed, a sum of said string weight factor and said acronym weight factor is equal to one (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

18. As per independent claim 14, Kilpatrick teaches an intrusion detection operating efficiently in real-time. Computational efficiency is generated through the representation of known sequences of system calls in a distance matrix. The distance matrix indirectly specifies known sequences by specifying allowable separation distances between parts of systems (col. 3, lines 11-16). Kilpatrick teaches the claimed, calculating a Levenshtein matrix of a first string and a second string (Fig. 6, col. 10, lines 7-10). Kilpatrick teaches the claimed, determining a Levenshtein distance from said Levenshtein matrix (Fig. 6, col. 10, lines 27-28). Kilpatrick teaches the claimed, determining if first string is a match to second string based upon said similarity (col. 11, lines 8-10).

Kilpatrick does not explicitly teach does not teach first numerical score as function strings. However, Haigh teaches the claimed, calculating a first numerical score as a function of said Levenshtein score and said largest common substring score (Fig. 6, page 5, paragraph [0053-0054]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to • overcome difficulties, time consuming and tedious while using rules or regular

expressions (page 1, paragraph [0011]). Kilpatrick does not explicitly teach largest common substring between strings. However, Chan teaches the claimed, calculating a largest common substring score as a function of Said largest common substring (Fig. 4, col. 9, lines 2-6).

Kilpatrick and Haigh do not explicitly teach largest common substring between strings. However, Chan teaches the claimed, numerical score is a first quantification of a similarity between a set of characters in said first string and a set of characters in said second string as a function of said Levenshtein distance and said largest common substring (Fig. 4-5, 7A-B, col. 9, lines 2-6 and col. 10, lines 55-62). Further, Chan teaches the claimed, determining a longest diagonal of equal hamming distance within the Levenshtein matrix (as per the spec. Page 7, lines 17-18, longest diagonal is same as the largest common substring) (Fig. 4, col. 9, lines 2-6). Chan also teaches the claimed, Determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and

second strings (Fig. 4, col. 8, lines 38-42). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Chan's teachings would have allowed Kilpatrick's method to reduce the amount of latency by caching and prefetching components of electronic mail messages using information relating to similar objects that were previously supplied to the client by the mail server (col. 2, lines 22-25 and lines 33-35).

Kilpatrick, Haigh and Chan do not explicitly teach automating data entry, processing or reporting. However, Duffey teaches the claimed, automating data entry, processing or reporting for a database including at least one of said first or second strings based upon said Levenshtein distance and said largest common substring (Fig. 8A, col. 13, lines 45-52). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Duffey's teachings would have allowed Kilpatrick's method to bridge the gap between any e-mail communications and the vendor's order processing system (page 1, paragraph [0007]).

19. As per dependent claim 15, Kilpatrick teaches the claimed, calculating a subtracting the resultant of dividing said Levenshtein distance by an average of a length of said first string and a length of said second string from one (Fig. 6, col. 9, lines 44-45, col. 10, lines 27-28).

20. As per dependent claim 16, Kilpatrick, Haigh and Chan combined teaches claim 14. Haigh teaches the claimed, determining a length of said largest common substring from said Levenshtein matrix and dividing said length of said largest common substring by an average of a length of said first string and a length of said second string (Fig. 7, page 5, paragraph [0053-0054 and 0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

21. As per dependent claim 17, Kilpatrick, Haigh and Chan combined teaches claim 14. Haigh teaches the claimed, calculating a weighted Levenshtein score comprising a product of said Levenshtein score and a Levenshtein weight factor, calculating a weighted largest common substring score comprising a product of said largest common substring score and a largest common substring weight factor and summing said weighted Levenshtein score and said weighted largest common substring score (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to

overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

22. As per dependent claim 18, Kilpatrick teaches the claimed, calculating an acronym score and calculating a second numerical score as a function of said first numerical score and said acronym score (Fig. 6, col. 9, lines 44-45). Kilpatrick teaches the claimed, automating at least one of said data entry, processing or reporting based upon said similarity (col. 11, lines 8-10).

23. As per dependent claim 19, Kilpatrick, Haigh and Chan combined teaches claim 14. Haigh teaches the claimed, calculating a weighted Levenshtein score comprising a product of said Levenshtein score and a Levenshtein weight factor, calculating a weighted largest common substring score comprising a product of said largest common substring score and a largest common substring weight factor, calculating a Levenshtein largest common substring score comprising a sum of said weighted Levenshtein score and said weighted largest common substring score, calculating a weighted Levenshtein/largest common substring score comprising a product of said Levenshtein/largest common substring score and a Levenshtein/largest common substring weight factor, calculating a weighted acronym score comprising a product of said acronym score and an acronym score weight factor and summing said weighted Levenshtein largest common substring score and said weighted acronym score (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of

ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

24. As per dependent claim 20, Kilpatrick, Haigh and Chan combined teaches claim 14. Haigh teaches the claimed, utilizing said first numerical score for automating said at least one of data entry, processing or reporting, when said first string and said second string comprise numerical-type strings and utilizing said second numerical score for automating said at least one of data entry, processing or reporting, when said first string or said second string comprise character-type strings (Fig. 7, page 5, paragraph [0057]). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Haigh's teachings would have allowed Kilpatrick's method to identify and categorize text within documents in order to overcome difficulties, time consuming and tedious while using rules or regular expressions (page 1, paragraph [0011]).

Response to Arguments

25. Applicant's arguments filed on 12/30/2008 have been fully considered but they are not persuasive and details as follows:

- a) Applicant's argument stated regarding claims 1-13, "these claims are amended..." See page 10, paragraph last.

In response to Applicant argument, Examiner agrees. Applicant's amendment overcomes the claims objection and it is withdrawn.

- b) Applicant's argument regarding claims 1, 6, 14, as Applicant amended to overcome 35 U.S.C. 112, 2nd paragraph rejection and requesting to withdraw the rejection.

In response to Applicant argument, Examiner agrees. Applicant's Amendment has overcome the rejection under 35 U.S.C. 112, 2nd paragraph. Therefore, the rejection is withdrawn.

- c) Applicant's argument regarding claim 1 rejection under 35 U.S.C. 103 stated as "There is no suggestion that the generated Levenshtein matrix in Kilpatrick can also be used to identify the largest common substring between two strings."

In response to Applicant's argument, respectfully examiner disagrees, because, the second prior art by Chan teaches how to determine the largest common substring (Fig. 4, col. 9, lines 2-6). Therefore, the combination of three references teaches all limitation of claim 1. The third reference by Duffey teaches the automation limitation. Applicant amendment is not significant because of the "Automating". As per a case law, "The claimed invention in Dann

v. Johnston, 425 U.S. 219, 189 USPQ 257 (1976) was directed towards a system (i.e., computer) for automatic record keeping of bank checks and deposits.”

d) Applicant’s argument regarding claim 1 rejection under 35 U.S.C. 103 stated as “Similarly, Chan and Haigh each merely discloses a separate and distinct method for calculating a largest common substring of two strings.”

In response to Applicant’s argument, respectfully examiner disagrees. Because, the Levenshtein matrix is also called as edit distance and Chan and Haigh both teach edit distance. The evidence is not established using only Levenshtein matrix for determining the largest common substring. In response to applicant's argument, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sathyanarayan Pannala/
Primary Examiner

srp
March 18, 2009